

REMARKS/ARGUMENTS

Claims 1-12 and 21-24 are pending. Claims 13-20 have been canceled without prejudice and without disclaimer. Claims 1 and 9 have been amended. New claims 21-24 have been added. No new matter has been introduced. Applicants believe the claims comply with 35 U.S.C. § 112.

Claims 1, 4, 5, 8-10, and 12

Claims 1, 4, 5, 8-10, and 12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese patent application Pub. No. 08-097188 A (Yoshida et al.).

Applicants respectfully submit that independent claim 1 is novel and patentable over Yoshida et al. because, for instance, Yoshida et al. does not teach or suggest a heat shield for shielding a nozzle extending into a chamber to introduce a process gas into the chamber through a nozzle opening wherein the heat shield is spaced from the nozzle by a gap, and the gap between the heat shield and the nozzle is smaller than a thickness of the heat shield. This is described, for instance, in paragraph [33].

In contrast, the heat shield of Yoshida et al. is disposed so that the gap between the heat shield and the nozzle is significantly larger than the thickness of the heat shield. The design of the heat shield disclosed by Yoshida et al. is disadvantageous in that it occupies a larger volume within the limited confines of a semiconductor processing chamber, which can impede the processing of substrates due to spatial limitations. Furthermore, the larger volume occupied by the heat shield disclosed by Yoshida et al. causes poor heat dispersion by the heat shield in that the shield is closer to the substrate and the plasma formed within the chamber.

For at least the foregoing reasons, independent claim 1, and claims 4, 5, and 8 depending therefrom, are novel and patentable over Yoshida et al.

Applicants respectfully assert that independent claim 9 is novel and patentable over Yoshida et al. because, for instance, Yoshida et al. does not teach or suggest a heat shield for shielding a nozzle extending into a chamber to introduce a process gas into the chamber through a nozzle opening, wherein the heat shield includes a hollow member being spaced from the nozzle by a gap which is smaller than a thickness of the hollow member. As described

Amendments to the Drawings:

The attached sheet of drawings includes changes to Fig. 2. This sheet, which includes Fig. 2 replaces the original sheet including Fig. 2.

Attachment: Replacement Sheet

above, the head shield of Yoshida et al. is disposed so that the gap between the heat shield and the nozzle is significantly larger than the thickness of the heat shield.

For at least the foregoing reasons, independent claim 9, and claims 10 and 12 depending therefrom, are novel and patentable over Yoshida et al.

Claims 2, 3, and 11

Dependent claims 2, 3, and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida et al. in view of Japanese patent application Pub. No. 09-134880 A (Tsukune). The Examiner recognizes that Yoshida et al. does not teach the material of the heat shield, and cites Tsukune for allegedly disclosing the missing feature.

Tsukune does not cure the deficiencies of Yoshida et al., in that it also fails to teach or suggest that the gap between the heat shield or hollow member and the nozzle is significantly larger than the thickness of the heat shield or hollow member, as recited in independent claim 1 and claim 9, from which claims 2-3 and claim 11 depend, respectively.

For at least the foregoing reasons, claims 2, 3, and 11 are patentable.

Claims 6 and 7

Dependent claims 6 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida et al. in view of U.S. patent 6,200,911 (Narwhankar et al.). The Examiner acknowledges that Yoshida et al. does not teach a plurality of nozzles, and cites Narwhankar et al. for allegedly disclosing the missing feature.

Narwhankar et al. does not cure the deficiencies of Yoshida et al., in that it also fails to teach or suggest that the gap between the heat shield and the nozzle is significantly larger than the thickness of the heat shield, as recited in independent claim 1 from which claims 6 and 7 depend.

For at least the foregoing reasons, claims 6 and 7 are patentable.

Claims 21-24

New claims 21-24 depend from independent claims 1 and 9, respectively, and are submitted to be patentable as being directed to additional features of the invention, as well as by being dependent from allowable claims 1 and 9. Claim 21 and 23 recite that the heat shield is

formed integrally with the nozzle. Claim 22 and 24 recite that the heat shield is coupled with the nozzle by a threaded connection. Support for these claims can be found, for instance, in paragraph [32]. These features are completely absent from the cited references.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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